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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,751	10/27/2003	Masakazu Uesugi	NAN-0232	8839

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EXAMINER

SOOHOO, TONY GLEN

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/692,751

Applicant(s)

UESUGI ET AL.

Examiner

Tony G. Soohoo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 1-13-04.
- 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the pressure release port of claim 4 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berchoux 4529321 in view of Wotring 5005990.

The Berchoux reference discloses a homogenizer with a fixed portion of the housing 4 which is defined by the cover forming an inlets 1,6, and a disc shaped rotor 2 with radial grooves formed between along the vanes 3 and 8,9 which faces opposed to the fixed portion and thereby providing a bearing clearance whereby raw liquids may be fed into by the inlets.

The Berchoux reference discloses all of the recited subject matter as defined within the scope of the claims with the exception of the drive shaft of the motor 5 being supported by a hydrodynamic bearing.

The Wotring reference discloses that a driven pump assembly shaft at 46 may have a driven shaft 45 to operate a pump 47 whereby a hydrodynamic bearing 53 to support the shaft in a more highly loaded condition, column 2, lines 54-65.

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In view of the teaching that a driven shaft may be supported by a hydrodynamic bearing in order to support the shaft in a more highly loaded condition, it is deemed that it would have been obvious to one of ordinary skill in the art to substitute the shaft bearing arrangement of the Berchoux reference with a hydrodynamic shaft bearing as suggested by the Wotring reference so that the drive shaft of the mixer turbine may be operated in a more highly loaded condition for mixing efficiency.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berchoux 4529321 in view of Wotring 5005990 as applied to claim 1 above, and further in view of Auerbach 1790967.

The Berchoux reference, as modified, discloses all of the recited subject matter as defined within the scope of the claims including with radial pumping grooves formed between along the vanes 3 and 8,9 which faces opposed to the fixed portion and an agitation groove formed there between vanes 3 and 8.

The Berchoux reference discloses all of the recited subject matter as defined within the scope of the claims with the exception of pumping grooved being spiral shaped.

The reference to Auerbach 1790967 shows a disc impeller 5 vanes 6 which provides a spiral grooves there between and a portion radially between the vanes 6 best seen in figure 2, at 15 forming an agitation groove to produce a vortex, page 2, lines 23-33.

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In view of the showing and discussion of Auerbach, figure 2, that a disk with vanes in the configuration of figure 2 may produce a vortex for emulsion, it is deemed that it would have been obvious to one of ordinary skill in the art to substitute the for the rotor groove arrangement with an arrangement as shown by Auerbach so that a vortex is formed for greater dispersion and emulsion of materials fed into the device of Berchoux.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berchoux 4529321 in view of Wotring 5005990 as applied to claim 1 above, and further in view of US 2002/0060950 to Furukawa.

The Berchoux reference, as modified, discloses all of the recited subject matter as defined within the scope of the claims with the exception of having a pressure relief valve (release port) to adjust the pressure in the homogenizer bearing clearance space between the rotor and the fixed portion of the housing.

The reference to Furukawa teaches that an emulsifying means 60, see figure 1, may be fed material by a pump line inlet which has a relief valve 70 fluidly connected to the fluid inlet line. It is noted that the relief of pressure by valve 70 would inherently relieve pressure inside the emulsifying means 60, this may provide a desired safety feature to the emulsifying means, see paragraph [0071].

In view of the teaching of Furukawa that a relief valve may be connected to the inlet pressure feed line of an emulsifying device to provide a safety operation, it is deemed that it would have been obvious to one of ordinary skill in the art to provide a

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relief valve in the inlet pressure line of the Berchoux device so that the pressures inside the chamber of the housing between the rotor and the housing is maintained in a safe operation parameter.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Uesugi et al 6869212 is related to the cited references cited on PTO 1449. The following disclose disc rotors and a fixed portion: Messmore 2272573, Thompson et al 4172668, Ramsay 5984627, Cusi 2853280, Jacobsen 2239152, Zucker 3995838. The following disclose hydrodynamic bearing systems: Ramsay 5984627 and 6210103, and 5827042, Schwartzman 4828402,

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony G. Soohoo whose telephone number is (571) 272 1147. The examiner can normally be reached on 7-5PM, Tue-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Tony G Soohoo
Primary Examiner
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